

# Advanced Local Digital Twin of Nicosia city-Cyprus

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**CYENS Centre of Excellence**

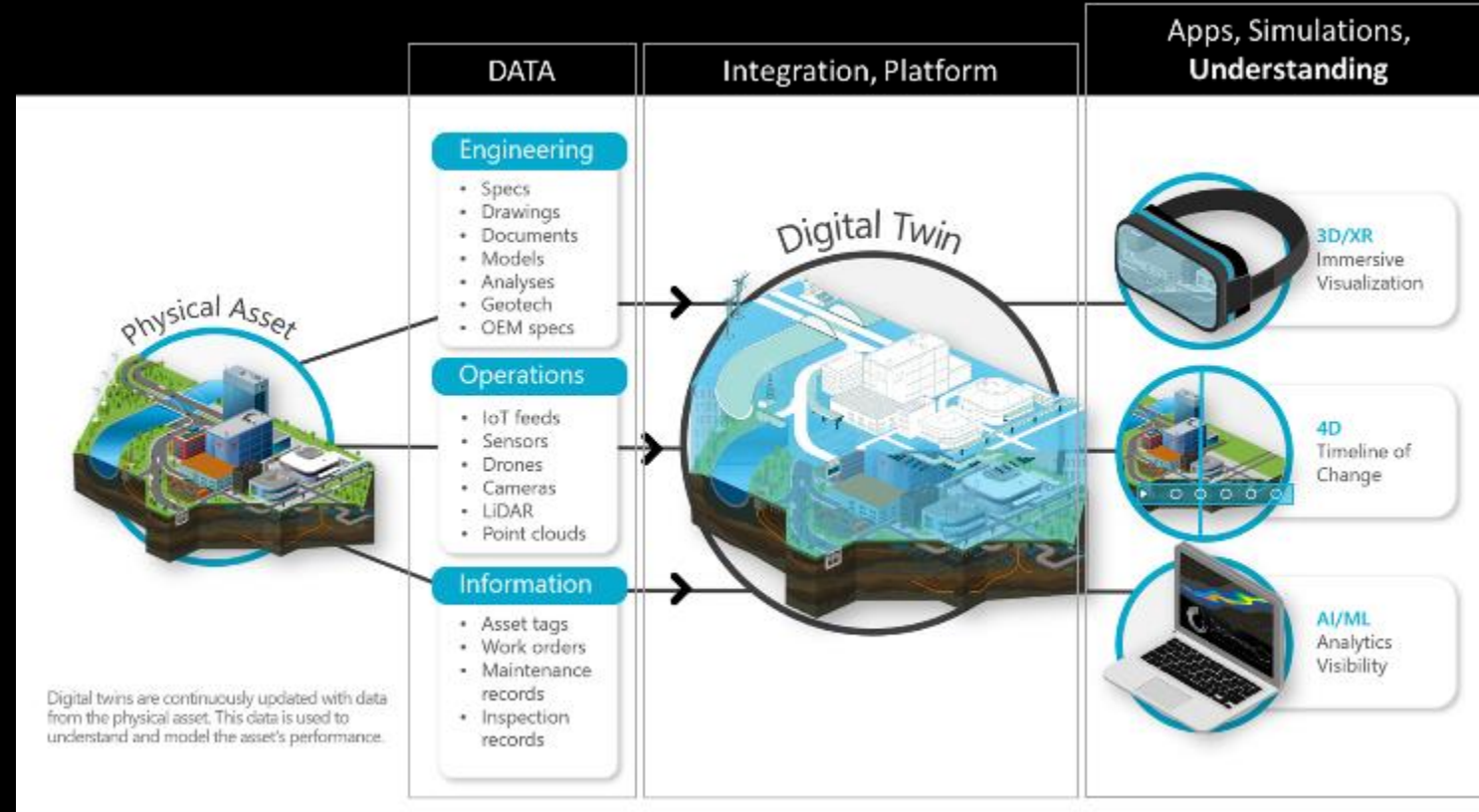
<https://inicosia.cyens.org.cy/>

[www.cyens.org.cy](http://www.cyens.org.cy)

# Our ambition

To build a world class, state-of-the-art Urban Digital Twin of Nicosia city that acts as a virtual platform for research and innovation

- for preservation and data collection (Digitization, Data aggregation)
- for analysis, understanding and improvement (APIs, AI, simulations)
- for novel modes of interaction and experience (XR/Metaverse, Agentic AI)
- to engage different stakeholders (citizens, scientists, engineers, artists, ...) and enable collaboration

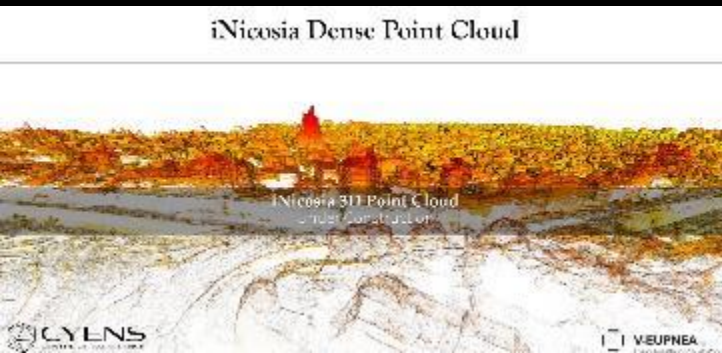


# The Project Idea

Use iNicosia, CYENS' advanced digital twin of Nicosia, as a **Horizon Europe-ready living lab/test bed** to run *validated, data-driven pilots*.

## What iNicosia offers:

- **Municipality-linked access** to Nicosia's city network and relevant data sources
- **Real-time IoT + Earth Observation** inputs
- High-fidelity **3D city model**
- **AI-driven simulations** for “what-if” decision support
- Citizen-facing **XR – Metaverse** interfaces for co-design



# iNicosia: Data

## Engineering

- Specs
- Drawings
- Documents
- Models
- Analyses
- Geotech
- OEM specs

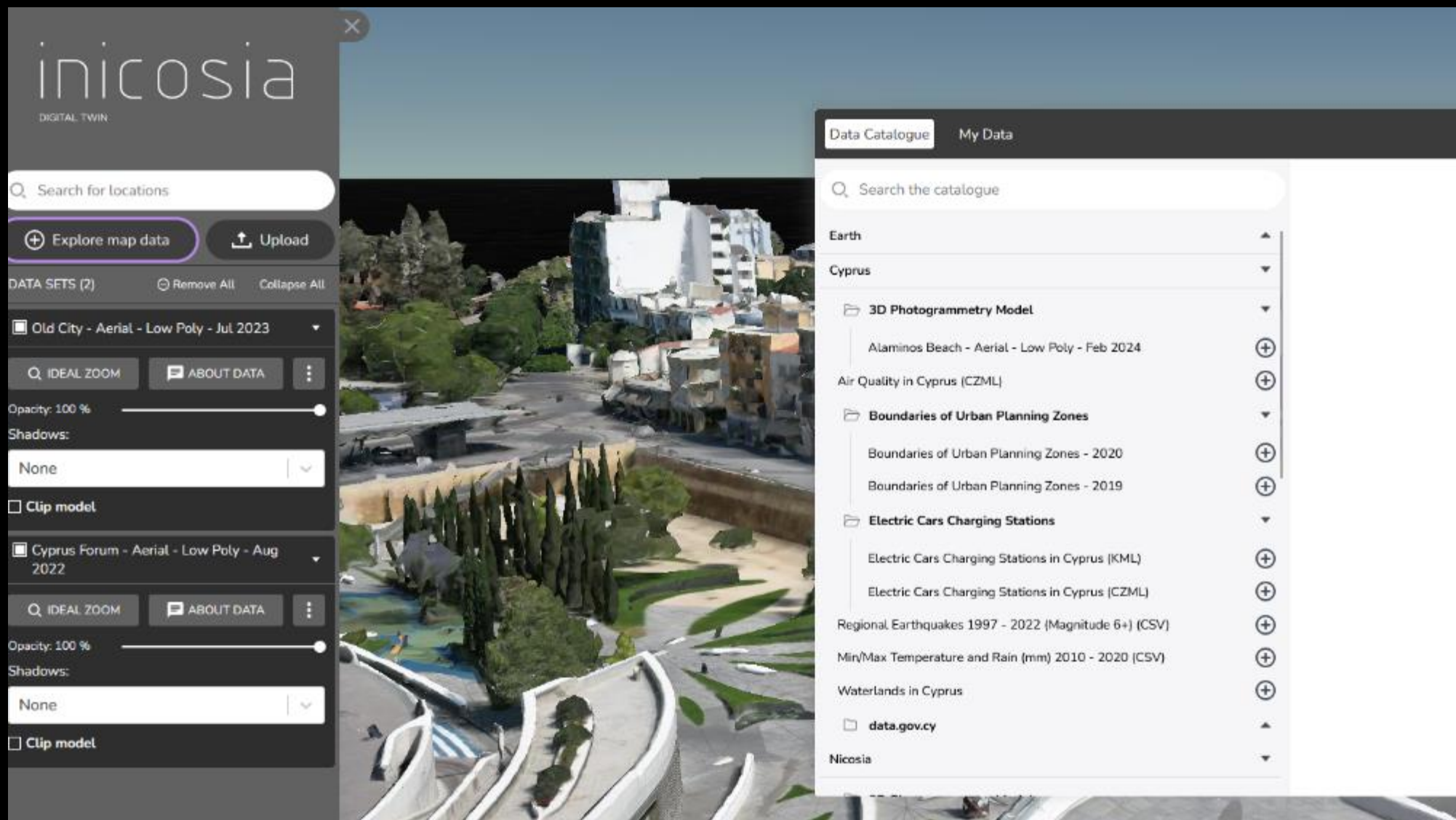
## Operations

- IoT feeds
- Sensors
- Drones
- Cameras
- LiDAR
- Point clouds

## Information

- Asset tags
- Work orders
- Maintenance records
- Inspection records

# iNicosia Platform



# Pilot Scenarios

## Heat & Energy Planning

- Identify **urban heat hotspots** and vulnerable areas
- Test **mitigation scenarios** (greening, shading, materials, interventions)
- Support **energy planning** through scenario comparison and impact estimation

## Flood-risk mitigation

- Combine city context + inputs to model exposure and risk
- Simulate response/mitigation options and prioritise actions
- mobility measures

## Mobility optimisation

- Use city-linked data to test traffic/flow interventions
- Model pedestrian movement
- Evaluate “what-if” scenarios for sustainable mobility measures

# Partners sought

- **Coordinator(s)**: building a Horizon Europe consortium needing a **real city testbed** and/or **digital twin backbone**
- **City authorities / replication cities**: adopt/replicate pilots; provide local validation and scaling pathways
- **Utilities / telecom / IoT providers**: integrate sensor networks and operational data; deploy/maintain data pipelines
- **Earth Observation / space partners**: EO products, analytics, and fusion workflows
- **AI & simulation partners**: models, calibration, uncertainty, advanced forecasting/optimisation
- **Standards / data spaces partners**: interoperability, governance, data sharing frameworks
- **Cybersecurity + legal/ethics/impact partners**: secure-by-design, compliance, trust, societal impact KPIs
- **Citizen engagement partners**: participatory methods, UX, co-design processes